

CLAIMS

1. A process for preparing a conjugated polymer, which comprises polymerizing in a reaction mixture (a) an aromatic monomer having at least two boron derivative functional groups selected from a boronic acid group, a boronic ester group and a borane group, and an aromatic monomer having at least two reactive halide functional groups; or (b) an aromatic monomer having one reactive halide functional group and one boron derivative functional group selected from a boronic acid group, a boronic ester group and a borane group, wherein the reaction mixture comprises a catalytic amount of a catalyst suitable for catalysing the polymerisation of the aromatic monomers, and an organic base in an amount sufficient to convert the boron derivative functional groups into $-BX_3^-$ anionic groups, wherein X is independently selected from the group consisting of F and OH.
2. A process for preparing a conjugated polymer, which comprises preparing under non-polymerisation conditions an organic cation salt of an aromatic diboronate monomer by the reaction of an aromatic monomer having two boron-derivative functional groups with an organic base in an amount sufficient to convert the boron-derivative groups into boronate anionic groups ($-B(X)_3^-$) wherein X is independently selected from the group consisting of F and OH, and then polymerising the organic cation salt of the aromatic diboronate monomer with an aromatic monomer having two reactive halide functional groups in the presence of a catalyst suitable for catalysing the

polymerisation by elimination of a halide functional group and a boronate anionic group.

3. A process for preparing a conjugated polymer, which comprises preparing under non-polymerisation conditions an organic cation salt of an aromatic boronate monomer having a reactive halide functional group and a boronate anionic group ($-B(X)_2^-$) wherein X is independently selected from the group consisting of F and OH, and then polymerising the organic cation salt of the aromatic boronate monomer in the presence of a catalyst suitable for catalysing the polymerisation of the organic cation salt by elimination of a halide functional group and a boronate anionic group.
4. A process according to any of claims 1 to 3 wherein X is a hydroxyl group.
5. A process according to any preceding claim wherein at least 1.5 equivalents of said organic base per boron-derivative functional group is provided in the reaction mixture.
6. A process according to claim 5 wherein at least two equivalents of said organic base per boron-derivative functional group is provided in the reaction mixture.
7. A process according to any preceding claim wherein the organic base is selected from the group consisting of tetraalkylammonium carbonates, tetraalkylammonium bicarbonates and alkylammonium hydroxides.
8. A process according to claim 7 wherein the organic base comprises $R'R''R'''R''''NOH$, wherein R' is a C_1 - C_6 alkyl group, and R'' , R''' and R'''' are each independently hydrogen atoms or C_1 - C_6 alkyl groups.

9. A process according to claim 8 wherein the organic base is selected from $(\text{CH}_3)_4\text{NOH}$, $(\text{C}_2\text{H}_5)_4\text{NOH}$ and $(\text{C}_3\text{H}_7)_4\text{NOH}$.
10. A process according to any one of claims 1 to 5, wherein the organic base is a tetraalkylammonium carbonate or a tetraalkylammonium bicarbonate.
11. A process according to any preceding claim wherein the organic base is used in combination with an aqueous solution of an inorganic base.
12. A process according to claim 11 wherein the inorganic base is NH_4OH .
13. A process according to any preceding claim wherein the reaction is carried out in the absence of alkali metal cations.
14. A process according to any preceding claim, wherein at least one of the aromatic monomers is a 2,7(9,9-di-n-octylfluorene).
15. A process according to any of claims 1 to 3 wherein a solvent which is miscible with water and in which the reactive components are soluble is used.
16. A process according to any preceding claim wherein the catalyst is a palladium catalyst.
17. A process according to any preceding claim, wherein the polymerising conditions are such that the polymer produced is a semiconductive conjugated polymer.
18. A process according to claim 17, wherein the semiconductive conjugated polymer is a luminescent polymer.
19. A process for the production of an optical device or a component for an optical device, which comprises providing a substrate and producing a polymer in accordance with the process of any one of the

20. A process according to claim 19, wherein the optical device comprises an electroluminescent device.

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